Constructions, Word Grammar, and grammaticalization

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Abstract

In this paper, I explore the hypothesis that constructions—here understood primarily as the dependencies of Word Grammar—can undergo systematic change, sometimes partly due to the effects of the grammaticalization of a lexical item or class of lexical items. I argue that the development of WILL *as a future tense marker in English involves the development of a new construction where two separate syntactic items are associated with a single event in the semantics. I also look at the loss of the impersonal construction in English, where it has been argued that the change is driven by an increase in the schematicity of the Transitive Construction, as well as having been argued that dative experiencers have been reclassified as subjects. I observe that it has also been noted that dative experiencers could function as subjects in earlier varieties of English, and suggest that this is an example of category strengthening.*

Keywords: *auxiliation, construction grammar, constructional emergence, grammaticalization, impersonal constructions, Word Grammar*

1. Introduction

There is an emerging body of work which explores the idea that symbolic theories of grammar which combine form and meaning (as in a sign or a construction) are useful frameworks for the discussion of grammaticalization, for

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two main reasons. First, a construction can constitute a target for grammaticalization and, secondly, constructions themselves can undergo various changes which resemble (some of) the changes found in grammaticalization. Work that is informed by these observations includes Bisang (1998), Traugott (2003, 2007), Himmelmann (2004), Hilpert (2008), Trousdale (2008c, forthcoming), Patten (2010a) and Gisborne and Patten (forthcoming). A number of relevant issues are discussed in Hoffmann and Trousdale's introduction to the present volume. It is now clear that there is emerging common ground among scholars working with the question how construction grammar(s) might inform grammaticalization research and at the same time it is evident that there are some interesting debates to be had (Noël 2007). This paper is intended as a contribution both the growing body of work that argues that grammaticalization can be fruitfully investigated from the perspective of a construction grammar and to the debates about what the limits of that investigation should be.

In this paper I discuss the grammaticalization of various secondary predication structures, involving non-finite predicative complementation, using Word Grammar (WG). I describe the theory in Section 2, but it suffices to say here that, like the theories in Langacker (1987, 1991) and Lakoff (1987) it is an explicitly cognitive theory first reported in Hudson's (1984) monograph *Word Grammar* and that it is a constructional theory, organised around two inheritance hierarchies: a hierarchy of lexemes and lexical categories, and a hierarchy of dependencies and dependency types. Both lexical items and dependencies in WG are constructions (Gisborne 2008, 2010; Holmes 2005; Hudson 2007, 2008). However, unlike other constructional theories, WG eschews phrases. The exploitation of WG has one significant advantage for this discussion, which is that it is possible to show the internal dimensions of constructions within a geometric (rather than an algebraic) representation. This allows us to explore how the internal dimensions of a construction change in the context of the grammaticalization of the items that occur in the construction.[1] However, I have kept the WG-specific machinery to a minimum in the paper.

Here, I explore two cases studies: English auxiliation, with a particular case-study of the future use of WILL, where I argue that the construction itself undergoes grammaticalization, and that the WG network allows us to make an appropriately fine-grained analysis of the nature of the change in the construction; and the loss of impersonal constructions in English—with a brief excursus on

1. Although construction grammars which exploit Attribute-value matrices, such as Sign-based Construction Grammar, are also able to model the internal structure of a construction, and therefore changes in its internal composition. See Fried (2009) for a usage-based version of the theory, and Fillmore et al. (2007) for a version of Sign-based Construction Grammar which is not usage based. See Goldberg (2006) for a discussion and comparison of the different kinds of construction grammar.

Icelandic quirky case marking. The paper has the following structure: Section 2 discusses construction grammars; Section 3 looks at grammaticalization and the modelling of grammaticalization in a constructional model; Section 4 is a case study sketch of auxiliation; Section 5 is a case study sketch of oblique subjects and the loss of impersonals in English; Section 6 presents the conclusions.

2. Construction grammars and Word Grammar

There are various different construction grammars, but there are some properties which are shared by all constructional theories so it is reasonable to assert that construction grammars share key features. Goldberg (1995, 2006), Croft and Cruse (2004), and Croft (2001) all exploit default inheritance, they all treat grammar as a declarative database consisting of a hierarchical network of constructions and construction types, and they all assume the idea that language is symbolic—that there are associations of form and meaning—so we can take these to be essential features of construction grammars.[2] Hudson (2007) makes the same claims for WG, which differs from other construction grammars in that it eschews phrases and therefore makes no use of meronymic or "part-of" relations. Cognitive versions of construction grammar, including WG, assume that grammar is "usage based"—that grammatical knowledge is induced by the speaker from their exposure to linguistic data as a speaker and as a hearer, and from the earliest stages of language acquisition. That is, there is a claim that language is not innate, and not discrete, but rather that it is emergent in the context of experience, and that it shares its structures and properties with the rest of general cognition. In a number of respects, these positions are like those articulated in Hopper (1987), although a Word Grammarian would also argue that speakers and hearers do induce sometimes quite abstract grammars, and the rules of those grammars are amenable to formal analysis.

In the rest of this section, I explore default inheritance, the idea that grammar is a network, and the idea that language is symbolic and explore their significance for theorizing grammaticalization, which I discuss at more length in the next section.

We can start with default inheritance. Modern construction grammars are all organised around default inheritance (Goldberg 2006: 215). In default inheritance, categorization is flexible: elements are assigned to categories, even if they do not have all of the features which are associated with a category, so a three-legged dog is still a dog. There are three main features of default inheritance:

2. But note that earlier versions of Fillmore and Kay's version of construction grammar worked with complete inheritance, rather than defaults, see Fillmore et al. (1988).

- it allows the modelling of prototypicality by dispensing with "necessary" and "sufficient" conditions for category membership;
- in the WG version, categories are established inductively, and in response to the experience of tokens—another way of saying this is that categories emerge due to experience, and there are no absolute "objective" categories;
- the way default inheritance works means that information is only inherited if it is active and salient.

The first two points make theories that adopt this view of inheritance clear examples of cognitive theories. Prototypicality works in tandem with the "best-fit" principle: tokens are assigned to categories on the basis of whether it makes sense to assign them in that way. For example, imagine a nineteenth century explorer encountering a duck-billed platypus for the first time. Is it a mammal? No, because it lays eggs. Yes, because it's warm blooded. No, because its body temperature is too low. Yes, because it has fur. Even though it is not a prototypical mammal, it makes sense in some ways to classify the duck-billed platypus as a mammal, because of its mammalian properties, but once you have established that it is not a prototypical mammal, and once you've met other similar animals, it makes sense to establish a subtype of mammal—the monotreme. We hypothesize that human cognition works like this, and that categories are plastic.

Goldberg (2006: 215) distinguishes between contemporary Unification Construction Grammar on the one hand and Cognitive Grammar, Cognitive Construction Grammar and Radical Construction Grammar on the other. All of these theories exploit default inheritance, but Unification Construction Grammar is not usage-based, whereas the other theories are. WG is also usage-based, as I have said, so the assumption is that usage patterns are stored and generalizations are induced over them. The categories of WG are inductively arrived at, as are individual concepts and the network of associations that link them. WG, like other usage-based theories, assumes that the grammar is at least transparent to the parser-processor, as well as assuming that semantics includes encyclopaedic information. This means that the architecture of WG permits it to model semantics- and pragmatics-led change in lexical items, similar changes in dependencies (or constructions), and to model grammatical changes led by parsing effects.

A discussion of inheritance leads to a discussion of how the grammar is organised as a network. Construction grammars assume that grammar, indeed the whole of language, is a hierarchical taxonomic network. So does WG, but where other construction grammars assume that there are part-whole relations, in that they adopt phrase structure, WG assumes that there are only hierarchical relationships (in the default inheritance hierarchy) and associative links. Note

that associative relations are not stated in a phrase structure. If a VP (minimally) consists of a V node and an NP node, for example, then the associative relation between that verb and the NP—the Object relationship—is not stated in the phrase structure, although it might additionally be stated in the construction.

Goldberg (1995, 2006), Croft (2001), and Croft and Cruse (2004) all assume that there are, or can be, associative relations within constructions. Goldberg exploits grammatical function information (subject, object, indirect object) and Croft discusses the differences between grammatical roles and grammatical relations. It is also worth pointing out that Taylor (2004) and Verhagen (2003) also argue for the explicit inclusion of other than hierarchical relations between subparts of constructions in formal and semantic representations. But for WG, the whole of grammar is just an associative network—the syntax too. There is no phrase structure, and the associative relations between words (subject, object, complement), the words themselves, and the classifications of those words, are the only structures syntax supports.

One of the key elements of the claim that construction grammar has a special utility for the study of grammatical change is that it is a symbolic theory. What does this mean, and in particular what does it mean in terms of WG? We can explore these ideas by looking at a simple construction—the lexeme. In Figure 1, I have presented a WG representation of a monomorphemic common count noun. All constructional theories would agree that words and lexemes were constructions, so exploring this diagram allows us to see what the patterns

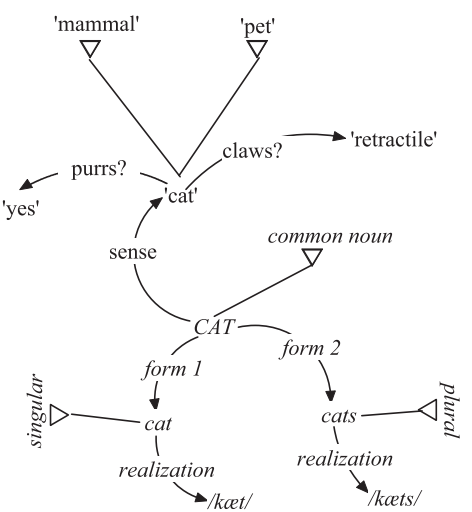

Figure 1. *The lexeme* CAT

of WG look like, and how they are similar to construction grammar, and how they differ. The "meaning" pole of the construction uses single quotation marks around concepts; the formal pole of the construction is in italics (see Croft and Cruse 2004: 258).

The diagram represents syntactic information (the classification of CAT); semantic information (the sense of CAT); morpho-syntactic information to do with inflection; and realizational information. There are various other features in the diagram which we can see. Arrows are associative links. The lines from the apex of a triangle to a concept are a way of showing inheritance links: the base of the triangle points at the classifying node, the apex at the classified node. The upside-down triangle with a line from *singular* to *cat* says that *cat* is an instance of the category *singular.* The form *cat* is the singular form of the lexeme CAT; and so it instantiates both the lexeme and the morphosyntactic category. Likewise, the similar relationship between *common noun* and *CAT* shows that the lexeme CAT is an instance of the category *common noun*. So the diagram also shows that there are classificatory relations at different levels of grammar, if we are happy to distinguish syntactic feature information from syntactic category information.

In the semantics, the concept 'cat' is classified as both 'mammal' and 'pet'. This shows us that it is possible to have multiple category membership, or—thinking in terms of inheritance—multiple inheritance, as long as the inherited features do not clash.[3] It also shows us that semantic information is encyclopaedic—cats purr, and cats have retractile claws. Finally, the diagram shows that the different domains of grammar—from morphology to encyclopaedic semantics—are linked by associative relations which are also the relations that are found within domains. This last part is crucial to the modelling of change, because it allows us to show that change can happen within a domain of grammar, say semantics, which can cause a change in the associative nature of the grammar, say between semantics and syntactic category.

Constructional theories and theories such as WG allow us to model very precisely where change can happen. In particular, we can see how meaning change can have an effect on grammatical classification and morpho(phono)logical realization; it also points out the wealth of facts that is contained in a single (simple) lexical entry and (therefore) other types of construction. Diachronically, we can see how the network changes: the research challenge is to see what patterns of predictability emerge. In Section 4, I discuss a change in the network which is, I think, a regular process commonly found in the Germanic languages.

3. See also Hoffmann and Trousdale's introduction to this volume for a longer discussion of multiple inheritance, and an account of how inheritance is relevant to the analysis of diachrony.

3. Grammaticalization

Symbolic theories of grammar which combine form and meaning (as in a sign or a construction) are useful locations for discussing grammaticalization, because the symbolic units can constitute a "target" for grammaticalization and because the symbolic units themselves can undergo processes of change with resemble those found in grammaticalization. It is, therefore, possible to see constructional change as it applies to the lexeme (grammaticalization) as a subtype of a more general kind of constructional change.

In grammaticalization, it is a commonplace to assert that grammatical change is led by changes in meaning (including subjectification); that it is incremental; that it is unidirectional; that it involves reanalysis; and that the general cognitive mechanism of analogy is how it spreads through the cognitive system. Reanalysis can occur because of categorical similarity and analogical reasoning, but on the other hand it can be parsing-led (Hawkins 1994) as well as led by meaning change. For a discussion of the general processes of grammaticalization, see Hopper and Traugott (2003).

In traditional theories of grammaticalization, where the diachronic cline from full lexical item to affix is explored, it is assumed that the grammaticalization item changes with no particular regard for the way in which the change shapes the surrounding grammar, or interacts with it. In the theoretical discussion I mentioned in my introduction, it is assumed that a grammaticalizing element can affect the larger constructional units of the grammar (Himmelmann 2004 calls this "host-class expansion") and that these larger constructional units can also undergo diachronic processes which look very like grammaticalization. It has been widely noticed that constructions can become more schematic (Himmelmann 2004; Traugott 2007; Trousdale 2008b). In advancing the claim that constructions grammaticalize by becoming more schematic, Trousdale (2008c) means that its semantics become more abstract among other things: "Increased productivity, increased generalisation, and decreased compositionality, taken together, are evidence of the T[ransitive] C[construction] having grammaticalized over time". Trousdale (2008a) also notes, however, that constructions can also undergo processes that are rather more like lexicalization.

But there are other changes that constructions can undergo, which are also found in grammaticalization. As Patten (2010a) observes in her discussion of the IT-cleft, diachronically constructions may become polysemous and their semantics can also undergo subjectification. As she shows, the development of the English IT-cleft involves a development of both constructional polysemy, so that the IT-cleft construction sanctions both specificational clefts and predicational clefts and, in so-called Information Presupposition clefts there is evidence of the construction undergoing subjectification. Hudson (1997) makes a different point. He argues that constructions can undergo "category

strengthening" as new categories become more entrenched and as the constructional network changes its architecture over time.

I said in the introduction that a construction can be a "target" for grammaticalization. What does that mean? I have two answers in mind. One is what I have just described for the IT-cleft; the other concerns reanalysis as a result of analogical reasoning. Some kinds of construction (lexemes) are distributed within others (grammatical constructions); see Croft and Cruse (2004: 255) on the grammar-lexicon continuum. Hudson (1984, 1990) also argues that there is no discrete grammar. As lexemes undergo grammaticalization, so their distribution can change, from a grammatical construction of Type A to one of Type B. A simple example would be the modal CAN, which is a relatively late entrant to the modal category. The new category of Modal Auxiliary took CAN from being a verb which occurs in a range of constructions (including the transitive construction) to being a verb which has its distribution limited to the modal auxiliary construction, arguably before it developed fully modal meanings. Warner (1993: 182) claims that it is only in the nineteenth century that CAN has clearly deontic and epistemic senses.

There are other reasons why we might want to think about grammaticalization in terms of constructional approaches. Grammaticalization theory assumes that language change happens in usage: functionalist theories cannot reasonably claim that a language is like it is because of functional pressures, because there is too much diversity in natural languages. But functionalist theories can reasonably claim that languages change as they do because of functional pressures. In the model advanced here, it is in the nature of categorization that change can happen. A usage-based model like WG employs categories that are responsive to experience, so categories can change. It is also worth noting that the main locus for change for formal theories—acquisition—is another domain of usage. Acquisition *is* usage.[4]

In the case studies in the next two sections, we shall see examples of category strengthening, constructional polysemy, and arguably subjectification, as well as reanalysis through analogical reasoning.

4. Case study 1: auxiliation

Following Heine (1993) and Kuteva (2001) I am leaving voice to one side altogether. My illustrative case study in this section is the change in the construction that is necessary to understand future WILL, but first I want to place that discussion in the wider context of auxiliation in English. We can start with a

4. This view is at odds with the Chomskyan view, perhaps most forcefully articulated by Lightfoot (1979, 1991), that acquisition is language change.

quote from Bolinger, "The moment a verb is given an infinitive complement, that verb starts down the road of auxiliariness." (Bolinger 1980: 297, quoted by Heine 1993: 27). Bolinger's remarks suggest that any verb which has non-finite complementation is on a cline which has full lexical verbs at one end, and auxiliaries at the other.

I have nothing new to add to the facts about how auxiliaries emerged in English, so I shall limit myself to a brief presentation of the textbook story. The emergence of the modal system in English involves two sets of changes: those specific to the modals, and various contextual changes. There were three main changes which were specific to the modals. With the exception of WILLAN, the modals emerged out of the preterite present verbs of Old English.[5]

- The preterite present verbs underwent a restriction in their semantics: as they developed modal meanings, so they lost their non-modal senses. For example, Denison (1993: 295) glosses Old English MAGAN as 'to have power'. This verb is the source of the modern English modal MAY.
- The complementation of these verbs became restricted. They lost direct objects, PP complements and the like, and became restricted to constructions consisting of *Modal + bare infinitive*. For example, Denison (1993: 306) gives the example *Who wil the curnell of the nut must break the shell* (1577 Grange, *Golden Aphrodite* I iij b [*OED* s.v. *will*, v[1]. B. 1]), where the form *wil* means 'want' and has a direct object, which shows persistence of historical sense and complementation pattern.
- The emerging class of modal verbs lost their finite inflections and their non-finite forms. The modern day modals are invariant, but Old English CUNNAN, for example, had the paradigm *cann*, *canst*, *cann* (for the 1st to 3rd person singular), and *cunnon*, *cuþest*, *cuþe* (for the 1st to 3rd person plural).

And there were two main changes, or sets of changes, which were contextual.

- Members of the class of preterite present verbs which did not develop into modal verbs were also lost. Examples include GEMUNAN 'remember' and WITAN 'know'.
- The distribution and syntactic behaviour of lexical verbs became restricted. In particular they lost the ability to invert in interrogative clauses and they lost the ability to be directly negated.

The emergence of the only tense auxiliary in English (I am assuming that SHALL is obsolete), WILL, is part of the story of the emergence of the modal auxiliaries. There is still some debate whether WILL is a tense auxiliary, as Declerck (2006) argues, or a modal whose semantics of futurity are implicatures, as Huddleston

5. See Denison (1993: 295–296) and Warner (1993: 142) for discussion of the status of WILLAN. Warner observes that it has some preterite present properties.

and Pullum (2002) claim. In this paper I take the view that it is syntactically a modal verb which is semantically a tense auxiliary.

Less significant for my discussion here, but still involving a relationship between the grammaticalization of the auxiliaries involved and changes in their host constructions, the history of the aspectual auxiliaries of English is slightly different. The emergence of progressive constructions with BE +*ing* is relatively late, with dynamic verbs with present time reference still occurring in the simple present at the turn of the 16th century. The emergence of the perfect construction, especially HAVE with a past participle (HAVE rather than BE) involves the reanalysis of resultative constructions as perfects, and the reanalysis of adjectival participles as perfect or past participles (Denison 1993: 340–370). In both cases, the grammaticalization of the auxiliary involves constructional emergence: as Denison (1993: 340) puts it, the perfect "is a syntagm".

Pullum and Wilson (1979) offer an analysis of auxiliaries which helps with the analysis of auxiliation. One of the obvious first questions is what the syntax of an auxiliary is: Heine (1993) is concerned with whether there is a category "AUX". Pullum and Wilson argue that the auxiliary is the head of the construction with the lexical verb its dependent. This theory works better in several ways than the alternative that the auxiliary is the dependent in the construction, with the lexical verb as its head because it gives continuity with the lexical verb it derives from. It means that we can see changes in emerging auxiliaries as changes in their form and their complementation, which do not involve changes in their distribution. As we shall see, both lexical verbs which take infinitive predicative complements and auxiliaries are involved in the same syntactic structures. As a result, we can see the emergence of an auxiliary as a conspiracy of semantic change, the relevant contextual change, and the constructional change detailed subsequently.

The auxiliary as head analysis also gives a reasonable description of the facts, especially ellipsis information. See the examples in (1).

(1) a. *'May I go to the bathroom?' 'You may.'*
    b. *'Could Peter have arrived in Manchester by now?' 'He could.'*
    c. *'Will you go to the Ambassador's ball?' 'I will.'*

We can explore the continuity with lexical verbs by exploring Falk (1984) and the xcomp analysis of auxiliaries. This analysis argues that auxiliary verbs instantiate a kind of non-finite predication much like matrix lexical verbs that take non-finite complements. Falk's theory is worked out in LFG, which is a model where there are directly assigned grammatical functions between words. Although LFG is different from WG in that it has a level of phrase structure, its adoption of grammatical functions as primitives means that it has a level of analysis which is similar to WG.

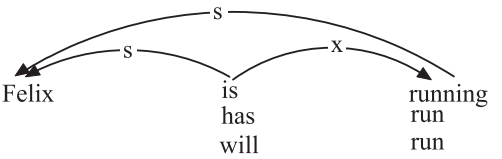

Figure 2. *The xcomp analysis of auxiliary constructions*

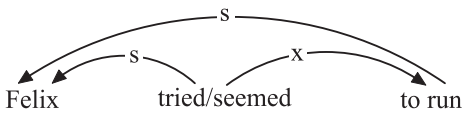

Figure 3. *The xcomp analysis of subject control/raising constructions.*

In Figure 2, I present a version of Falk's analysis of auxiliary constructions. Falk argues that the auxiliary verb has an xcomp (the grammatical function for a predicative complement) which shares its subject with the subject of the auxiliary. Hudson (1990: 121) presents a similar analysis of WG, although Hudson's terminology is slightly different (Hudson 1990: 117, has "incomplement" for xcomp).

As Figure 3 shows, the network of relations surrounding an auxiliary verb is the same as the network that surrounds a lexical verb which takes an infinitive complement. In a relational theory such as LFG or WG, a lexical verb such as TRY or SEEM takes an infinitival xcomp, which just as with the auxiliaries, shares its subject with the subject of the lexical verb.

In LFG, there are further elements to the analysis because the theory adopts a level of phrase structure, and assumes that there are clauses as part of the architecture of the theory. In WG, on the other hand, the network of dependencies, and classification of the individual words is all the syntactic structure there is.

The xcomp construction is associated with two different semantic patterns, and a range of different semantic relations. These are discussed in Gisborne (2010) chapters 3 and 6, as well as in Gisborne (2008), and it is reasonable to conclude that the xcomp relation is a construction type. It is a construction because it involves a number of relations between a range of different words: xcomp is not merely a dependency between the matrix verb and its non-finite complement. It also forces there to be additional structure: the subject relation between *running/run* in Figure 2 and *Felix* is there because the xcomp relation requires *running/run* to have a grammatical subject. But it is also a construction because this syntax is associated with particular semantics. The difference between TRY and SEEM in constructions like those in Figure 3 is not a syntactic

difference, but a semantic one: TRY's sense assigns a semantic role to its subject; SEEM's sense does not. This semantic difference is a kind of constructional polysemy,[6] and the case is worked out in Gisborne (2008). Subsequently, we shall see a third semantic pattern, so it will become clear that the polysemy is even further developed.[7]

We can ask two questions at this point. What evidence is there that there is a subject relationship between *Felix* and *running|run|to run* in these diagrams? And what is the "clause structure" of these examples?[8] Some evidence that *Felix* is the subject of the non-finite verb as well as the finite verb comes from the distribution of reflexive pronouns. It is widely hypothesized that reflexive pronouns and their antecedents have to be dependents of the same head. If the reflexive pronoun is an object, then its antecedent has to be the subject of the same head. There are some examples in (2).

(2) a. *Felix is perjuring himself.*
b. *Felix has perjured himself.*
c. *Felix will perjure himself.*
d. *Felix tried|seemed to perjure himself.*

In each of the examples in (2), *himself* is the object of *perjure*, so we will assume that the antecedent of *himself* is also an argument of *perjure*—and therefore its subject.[9]

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6. Constructional polysemy is the idea that a construction itself may have a range of meanings; the idea is discussed by Goldberg (1995) in the context of an account of the different meanings of the ditransitive construction. In the case of raising and control patterns, verbs like BEGIN, which may occur in both patterns, are evidence of constructional polysemy.
7. The claim that raising and control are semantically different, but not syntactically, works for English, although there is evidence that in other languages such as Greek and Icelandic there are empirically discernible syntactic differences. In part, the evidence for these syntactic differences is the raising of non-nominative subjects which I review in Section 5. This question, of course, is different from the theoretical question of how the raising/control difference should be represented, and whether the theorist tolerates mismatch between syntax and semantics.
8. The second question, of course, invites us to ask what we might mean by "clause structure". I shall assume that what is commonly called "clause structure" in examples like those in (2) is nothing of the kind. It is actually propositional structure, i.e. in the semantics, and the proper question is whether these predicative constructions involve one or two propositions, rather than one or two clauses. There is, after all, no independent morphosyntactic evidence of clausehood (such as tense) in these examples. As it happens, I have been led to this position because WG does not include clauses in its theoretical machinery, but the observation is independent of WG's theoretical position on clausehood.
9. A referee observes "objects can also bind reflexives, like in 'I gave him a picture of himself' ". But not direct objects, and in any case there is only one argument in the examples in (2). The point I am making is that in these examples *Felix* must be the subject of *perjuring*, *perjured*, and *perjure* as well as the matrix verb in order to bind the reflexive pronoun.

So far, I have discussed the syntax, and the raising/control distinction. The argument is that both raising and control verbs involve the same network of dependencies, and so they share the same syntax. Now, I want to discuss the semantics in greater detail. The reason for this is that for WILL to be a tense auxiliary, it involves another semantic property: a *will+bare infinitive* construct denotes a single event. The examples shown in Figure 3 all involve two propositions or events. It is the development of the single-event semantics that is at issue here. To explore this development, we need to explore some diagnostics for event and propositional structure.

The examples in (2) raise two questions about the nature of the propositions described. Why are there differences in propositional structure? The examples in (a)–(c) involve one proposition; (d) involves two. How do we know when there is one proposition rather than two? It's not straightforward to establish when there is one proposition and when two. For example, TO infinitive clauses can express separate propositions from their matrix verbs, but they need not, as the examples in (3) show. The same applies to bare infinitive clauses.

(3) a. *We started to run.*
    b. *We intended to run.*

In (3a), the incipient stage of a running event is described; in (3b), on the other hand, there are two separate propositions—the intending proposition and the content of the intention, which is that we should run. One diagnostic for propositional structure is scope with negation. Take the examples in (4).

(4) a. *We didn't start to run.*
    b. *!We started not to run.*
    c. *We didn't intend to run.*
    d. *We intended not to run.*

The example in (4b) is semantically ill-formed (which is what the "!" diacritic means) because 'running', the concept associated with *to run*, does not enter into a separate propositional structure. On the other hand, the example in (4d) is not semantically ill-formed because in this example, 'running' does enter into a separate propositional structure. We can see, then, that a TO infinitive xcomp can express an independent proposition, or it can "merge" semantically with the matrix verb to form a single proposition.

Likewise, there is no rule that predicts whether a bare infinitive complement creates a separate proposition or not.

(5) a. *I'll go.*
    b. *I'll not go.*
    c. *We let him take the poison.*
    d. *We let him not take the poison.*

The examples in (5a, b) show that *'ll go* forms a single proposition. The example in (5b) is fully grammatical, but it is the scope facts that are central. There is no scope variability: negation does not scope under 'will' in (5b), but has to have wide scope. For it to scope under 'will', there would have to be an antonym of 'going', 'not-going', because it would have to be necessary to bare events to be negated. But it is propositions that are negated, not events. In the examples in (5c, 5d), on the other hand, it is possible for *not* to have narrow scope under *let*, and so we have to treat this xcomp as one that creates a discrete proposition in conceptual structure. From this, we have to conclude that there is no 1-1 correspondence between the word class of the word which is the xcomp, and whether the xcomp establishes a discrete proposition in conceptual structure.

This is an important finding, because it suggests that predicative structures involving xcomps are exactly the kind of location where we might expect to find grammaticalization processes taking place. Although there is debate about whether grammaticalization requires there to be ambiguity—Heine (2002) argues that it is, whereas Traugott (forthcoming) provides counterexamples—it is certainly the case that ambiguous constructions are open to reanalysis.

There is not just the one ambiguity—one proposition or two—that I have been describing. A further ambiguity is that both bare infinitive xcomps and TO infinitive xcomps can have either events or propositions as their associated conceptual structures. In *we began to go*, the xcomp *to go* is eventive; in *we saw the dog cross the road*, the xcomp structure *the dog cross the road* describes an event and not a proposition. Note too that it is possible to have different realizations of the same semantics. Both of the examples in (6) express the same semantics.

(6) a. *We started to run.*
    b. *We started running.*

I take it that both examples in (6) involve the same dependencies, subject and xcomp, and that the only difference is in the realization. Syntactic selection in these examples is lexically governed—START can have either a TO infinitive or an –ING participle as its xcomp, whereas STOP can only occur with the participle if it is to have a single-event semantics: *stop to run* does not mean the same as *stop running.*

The event vs. proposition issue is important here, because it allows us to distinguish between aspectual auxiliation and tense auxiliation. Aspectual auxiliation involves a single proposition, as I have said, but there are two events within the proposition. Tense auxiliation, on the other hand, expresses a single proposition which involves just a single event semantics. Furthermore, from the discussion of both we can see that there is no simple predictive relationship between syntax and semantics and therefore we need semantic diagnostics to

explore both the event/proposition question, and the "how many propositions?" question. The fact that we need semantic diagnostics is important, because it tells us that we are dealing with constructional polysemy, which Gisborne and Patten (2010) show is related to constructional change.

In the generative literature, the phenomenon of xcomps being in a structure which denotes either one or two propositions is known as "restructuring", which involves "some sort of reduced structure associated with clause union" (Miller 2002: 39). Miller identifies various properties of restructuring; one key one is, "Non-restructuring infinitives permit independent temporal specifications . . . but restructuring infinitives do not".[10] Therefore, (7a) is a "non-restructuring" pattern and (7b) is a "restructuring" one.

(7) a. *Maria decided at Christmas to visit John on his birthday.*
b. **Maria tried at Christmas to visit John on his birthday*.
[This example is ungrammatical unless John's birthday is at Christmas.]

In the generative literature, the issue with restructuring patterns is whether they involve "monoclausal" or "biclausal" structures, because the propositional structures I have just identified are assumed to belong to different syntactic structures. Miller (2002: 41) says, "restructuring verbs typically include *want*, motion verbs, aspectual verbs (*begin*, *continue*, *finish*), modals, subjectless causatives, and, with some variation, *try* and implicative verbs (*fail*, *manage*, *dare*, etc., and, in part, *forget*); non-restructuring verbs include *intend* (= *plan*), *announce*, usually *decide* and other syntactic control verbs . . . propositional verbs and factive verbs". He also notes that there is a cline from a non-restructuring verb, through restructuring verbs, to auxiliaries.

The argument in this paper is that these restructuring facts are not facts of syntax. They are facts to do with a single construction—the xcomp construction—having different semantic patterns associated with it, and they are to do with the semantics having changed over time, due to (no doubt) the grammaticalization of some of the lexical items which occur in the relevant construction. I propose now to explore this claim by looking at the changes that are necessary if we want to account for the development of future WILL. In the discussion that follows, I shall compare WILL with INTEND. The reason is simple—INTEND has the sense that the historical source of WILL, Old English WILLAN, had.

We can see the difference between a verb which takes an xcomp, where there is a discrete subordinate proposition, and one which combines semantically with the sense of the xcomp in Figures 4 and 5. Figure 4 represents the

10. The term "restructuring infinitive" is unhelpful. Miller is really discussing the whole construction involving both the infinitive and the matrix verb.

syntax and semantics of INTEND, which is listed in Miller's category of non-restructuring verbs. Figure 5 represents the syntax and semantics of WILL, which is not just a modal, but which expresses future tense in English. Note that the state of affairs which identifies two separate propositions, that is Miller's category of biclausal, or non-restructuring verbs, involves separate temporal specifications for each of the events. Note too that it involves a relation between these events. Gisborne (2010) chapter 3 presents an extended analysis of possible relations between events. For now, we can take (8) to see how in certain kinds of xcomp structure it is necessary to have an analysis of particular relations between events.

(8) *Jane caused|forced|persuaded Peter to leave*.

In (8), *Peter to leave* is the 'result' of the matrix verb.[11] That is, there is a specific semantic relation that holds between event 1 and event 2. This analysis of predicative complementation is relevant to the analysis of auxiliation, because there are three different things which happen in auxiliation:

– the emergence of a discrete class of (auxiliary) verbs (modals and aspectuals);
– a raising pattern but expressing one proposition (or event) not two;
– (in some cases) subjectification.

We will look first at the diagrams in Figures 4 and 5, and then consider the way in which the diachrony works.

In Figure 4, 'intending', the sense of *intended*, has two arguments, which I have called Er and Ee. We can treat "Er" as a gloss over the arguments that link to underived subjects, and we can treat Ee as a gloss of the arguments that link to underived objects. In the case of a verb like INTEND, the Ee will also link to the referent of its THAT clause complement in examples such as *we intended that she should go*. In the case of a verb such as INTEND, we can claim that the semantic structure associated with an xcomp will be in the same semantic relation as the semantic structure associated with a THAT clause—that is, it will take an Er and an Ee, and it will link its Ee to the semantic structure associated with the xcomp, in this case *to run*. The diagram therefore says that in its semantics, INTEND is a two-place predicate, whose Ee must denote a proposition. In this case, the propositional Ee is expressed by the referent of the xcomp. (Verbs like FORGET, which take either TO or THAT have a single semantics, associated with two different syntactic valencies.) The diagram also shows that

11. The examples in (8) are different from those discussed so far, because they involve matrix verbs which take an object as well as an xcomp. CAUSE is a raising-to-object or "Exceptional Case Marking" verb, whereas FORCE and PERSUADE are both object control verbs.

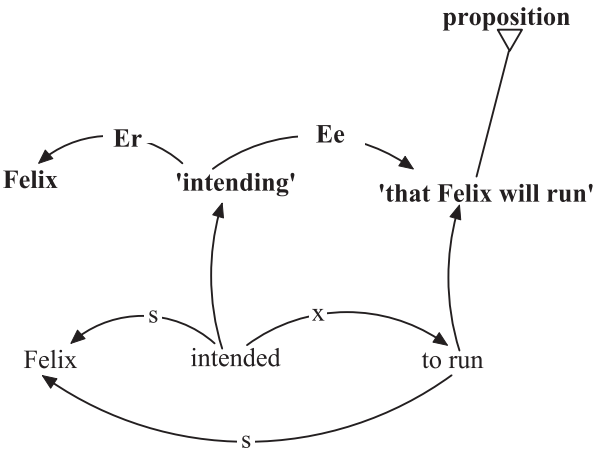

Figure 4. *Felix intended to run*

both *'intending'* and *'that Felix will run'* have a time value, and the time value of *'intending'* is before that of *'that Felix will run'*. Note too that the Er of *'intending'* is agentive: it is not possible to participate in involuntary intending.

Let us compare this with future WILL.[12] Hilpert (2008) argues that the English future with WILL is a tense and I assume Hilpert's analysis. Hilpert (2008: 100–105) presents compelling present-day collostructional evidence that desire and intention are no longer central elements of the construction's meaning. He explores the verbs that enter into the future construction with WILL and shows that the construction reveals "a clear preference for future events that are independent of intentional agents, low in transitivity and low in dynamicity" (Hilpert 2008: 105). Whether it is inflectional or lexical, tense is a construction: it composes with the sense of the verb to form a complex predicate, where the temporal location of the predicate is determined by tense, and the nature of the predicate, whether it is a state or event, and whether it is a complex event or not, is determined by the meaning of the verb. In the case of a future tense, on Hilpert's analysis, WILL supplies the temporal meaning, and the verb it occurs with supplies the sense, and the nature of the event. I therefore treat future tense as a complex predicate where each of the words involved corresponds to a different part of the predication. (It is tense, for example, that brings the requirement that the predication should have a subject.)

There's a simplified representation of *Felix will run* in Figure 5. In this representation, I have shown that the xcomp relation is associated with a single

12. See also Bergs (2010).

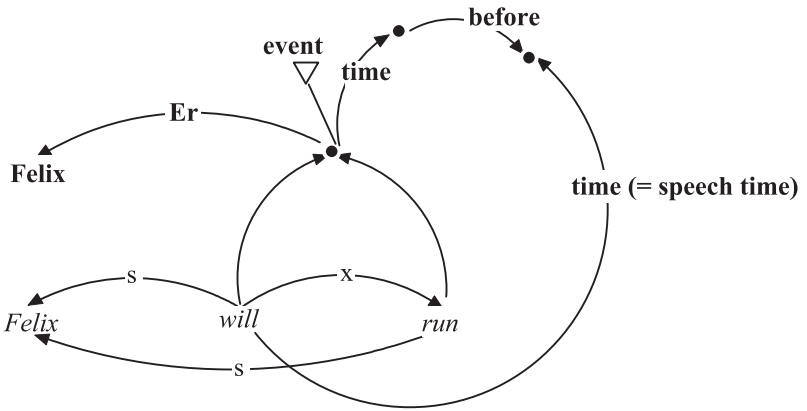

Figure 5. *Felix will run*

event. The structure in Figure 5 is the third type of predicative complementation I mentioned in the discussion of Figures 2 and 3. The point is not that this is the emergence of a raising structure, but that this is a new construction associated with tense and single predication distributed over two lexical items. Here there is no separate running event which is the semantic argument of the sense of WILL. Instead, the sense of WILL composes with the semantic structure associated with RUN to create a single semantic predication, which is a future instance of a single event. In this respect, then, *Felix will run* is quite different from *Felix intends to run*, where there are clearly two separate predications, and equally clearly two separate events.

As modern English future tense WILL is historically derived from Old English WILLAN, which meant 'intending', there has to be a diachronic structural path from the situation represented in Figure 4 to the situation represented in Figure 5. Note that it cannot just be the case that the word WILL underwent grammaticalization: the whole construction had to emerge as well, because of the structural difference between having a relationship between events, and one where the event is shared by the xcomp's head and the xcomp itself. The alternative account, where there was no corresponding change to the xcomp construction, would mean that it was not possible to treat WILL as a tense. It would, instead have to be treated as a modality, with strong implicatures of futurity.

There is another point to be borne in mind when comparing the two diagrams. Both diagrams show temporal information. In the case of Figure 4, there is a representation of the fact that the time of the non-finite clause comes after the time of intending. In the case of Figure 5, it is shown that the time of the running event comes after the speech time. This difference is, I think, sig-

nificant, because it demonstrates a degree of subjectification; both subjectivity and tense are deictic. In the case of future tense, the speaker makes a prediction, with a high degree of commitment and, of course, the speaker is the deictic centre of the temporal situation and the prediction. Given that the structure in Figure 5 is more subjective than that in Figure 4, what we see is that constructions can also develop subjectivity as they evolve.

We can see that there is evidence for both construction types in Old English. Warner (1993: 167–168) finds evidence for simple future examples with *willan*, in impersonal and passive structures, as well as with verbs that do not have a volitional subject and stative verbs. If we take the example in (9), we can see that there is a degree of ambiguity in some relevant Old English examples. The example (*Paris Psalter* 123.2) is taken from Denison (1993: 299) in a discussion of Goossens (1982: 79).

(9) *wen* *is, þæt hi* *us lifigende* *lungre wyllen* | *sniome*
expectation is that they us living quickly intend at-once
forsweolgan
swallow-up
'it is likely that they will swallow us up at once'

But there is an alternative reading: what about 'it is likely that they intend to swallow us up at once'? The example is ambiguous between the two readings. For the purposes of this paper, that is significant, because it means that the structure of the construction in (9) must be ambiguous between the two interpretations as well, as long as the claim that this example is a genuine case of the future is sustainable. Of course, it is necessary to bear in mind that at this stage of the history of the language the ambiguity could be in the semantics (and therefore pragmatic) rather than in the structure (and therefore semantic).

Do other auxiliary constructions require the pattern in Figure 5? I think that it is straightforward to see that both HAVE and BE aspectual auxiliation involve structures similar to the one in Figure 5, although there are some differences in that I think the aspectual auxiliaries express a single proposition, but one which involves two discrete events. In any case we can conclude that these structures evolved alongside each other; the development of both the future tense WILL construction, and the progressive and perfect aspectual constructions. It is, then, a new construction type, which developed in the history of English alongside the processes of auxiliation. The conclusion then is that the evolution of the construction in Figure 5 is a product of constructional change which is related to the grammaticalization of the English auxiliaries. One interesting wrinkle is that the construction in Figure 5 sanctions fewer instances than the structure in Figure 4, and is lexically specific to WILL. This just goes to show that constructional change is complex, and there is a lot of work that remains

to be done if we are to understand how the inventory of constructions, and how constructions themselves, change in diachrony.

5. Case study 2: impersonals and raising predicates

In my previous case study, there was an implicit argument to the effect that a fine-grained analysis was necessary to see how the internal dimensions of a construction changed. In this section, I develop that perspective, although here my argument is slightly different—I am taking up a data set explored by Trousdale (2008c), where Trousdale claims that the changes in the English impersonal construction are best handled by thinking about the transitive construction. Trousdale concludes that the transitive construction becomes more schematic, sanctioning a wider range of instances, and thus impersonals become subsumed under this construction type. In this section, my agenda is to offer a defence of a more traditional position, that the nature of English subjects changed, and that the change in English impersonals was due to dative experiencers becoming regularized as subjects. There are various discussions of the diachrony of this construction and a useful discussion of the different positions in Denison (1993: 61–102). Barðdal (2006) also discusses a number of related issues.

However, there are three complications: (i) as English lost case, it developed the subject requirement, and so lost the ability to have unrealized subjects; (ii) as Trousdale points out, most impersonals had a variant with a nominative subject which makes his suggestion that those with nominative subjects survived, while those that had dative subjects died out, an appealing one; (iii) as Allen (1995) has shown, there are clear examples of non-nominative arguments in Old English behaving like subjects—so for some speakers, at least, these were already subjects in Old English. Essentially, what I am arguing for in this section is that there is a process of regularization: experiencers, by default, are associated with subjects (Dowty 1991) see (11); subjects, by default, become obligatory in English; and the variable morphological realization of subjects which can be seen in Old English is also regularized so that the non-default expression of subjects becomes more or less impossible. This is Hudson's (1997) category strengthening.[13]

However, we should also entertain the possibility that not all dative experiencers in Old English were subjects, and that as part of the process of regular-

13. Los (2009) identifies other changes in English subjects, which are to do with the pragmatics of information structure, and are to do with the loss of the V2 strategy. These changes are like Trousdale's (2008c) increased schematicity, in that the subject construction sanctions a larger number of instances, and instances of different kinds, as it acquires a more general meaning. Note that the changes Los describes are later than those discussed here.

ization dative experiencers became associated with subjecthood. So how did impersonals' experiencer arguments come to be reanalysed as subjects? This is a change which is found in several languages from Icelandic through to unrelated languages of South Asia. The answer is that their semantics are broadly compatible, leading to a mismatch between the case of the (new) subject, and its syntactic function.

To make the analysis, it is necessary to come up with an appropriately fine-grained view of constructions. In this case, we need to think about subjects as a kind of construction, where there is a syntactic dependency between the finite verb and its subject argument, which is matched by a semantic relation. This is the standard WG analysis, and we call the semantic relation the Er, which stands for "the agent prototype". The claim is that semantics (and pragmatics) lead the change, which is common in syntactic argument reanalyses (Denison 2009), with the result that semantics trumps morphology. We can begin by taking a look at Old English impersonals. There is an example in (10).

(10) *him* *ofhreow* *þæs* *mannes*
3SM-dat pity-3SPast the-gen man-gen
to-him was-pity because-of-the-man
'He pitied the man'
Or: 'The man caused pity in him'

The example in (10) involves a verb with two oblique arguments—a dative pronoun, *him*, which denotes the experiencer of the sense of the verb, and a genitive noun phrase *þæs mannes* which denotes the stimulus of the experience that the verb denotes. The verb does not have a nominative subject, and unless the dative argument is taken as a non-nominative subject, it doesn't have a subject argument at all.

A reasonable question would be why is it possible for non-subjects to be reanalysed as subjects? The answer would be that the semantics sets it up. We can explore this by looking at two views of argument realization and the prototypical semantics associated with a particular grammatical function. Dowty (1991) presents a view of agents and patients as prototypical semantic functions. He lists a range of properties for the proto-agent and separate properties for the proto-patient. Schlesinger (1992) argues that experiencers are agents, and we can combine these two perspectives to see how it would be possible for experiencers to be identified as subject-related semantic arguments, because experiencer was part of the proto-agent package.

Dowty's list of properties for the proto-agent are given in (11). We do not need to explore the list of properties for proto-patient here, because they are not relevant to the case at hand.

(11) a. volitional involvement in the event or state
b. sentience (and/or perception)

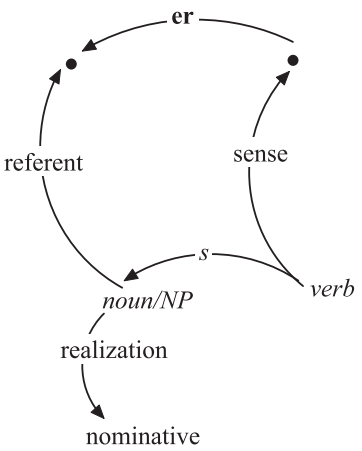

Figure 6. *The structure of the canonical subject*

c. causing an event or change of state in another participant
d. movement (relative to the position of another participant)
(e. exists independently of the event named by the verb.)

(Dowty 1991: 572)

An impersonal verb such as *ofhreow* does not necessarily involve many of these properties, unless we think that having an emotion is volitional. However, only a sentient entity can feel pity, and non-sentient entities can induce pity.

We can model this change in a WG network. We need to think of "subject-of" as a construction, linking a prototype semantics and a syntactic function, which is realized by a prototypical case when a language has a case system. I give an example of a prototypical subject in Figure 6.

Note that the Er stands for prototypical agent. The structure in Figure 6 contrasts with an experiencer argument in Figure 7.

The claim, then, is that the experiencer semantics causes the grammatical function marked by *?* to be reanalysed as a subject, as part of the process of regularisation, because "experiencer" is part of the agent prototype.

One way of exploring whether it is possible for an argument which is not marked nominative to be a syntactic subject is to look at the possibility of it raising into subject predicate over a so-called "raising predicate". In modern English, raising predicates are those predicates such as SEEM which do not assign a thematic role to their subjects, and which share their subjects with their predicative complements in the xcomp construction described in the previous section. In (12), we can see an example where this kind of subject-raising has

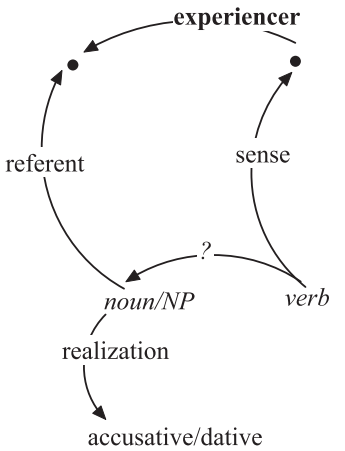

Figure 7. *The experiencer argument*

happened in Old English from an impersonal predicate which has an accusative argument, *hine* and a prepositional argument *beforan gode*. The impersonal predicate in the example is *gesceamian*.

(12) *hine* *sceal* *on* *domes* *dæg* *gesceamian* *beforan* *gode*
him-ACC shall on doom's day shame before God
'he shall feel ashamed before God on the Day of Judgement'
(*HomU* 37, 238.12 [Denison 1993: 301])

In (12), *hine* has raised over *sceal*. Its case is assigned by *gesceamian*. Bresnan (1994) presents arguments for using raising as a diagnostic of subjecthood, when she explores the syntax of locative inversion. The examples in (13) are examples where the PP has to be analysed as a subject, because it has raised over the relevant predicate, *seems* (see Webelhuth's contribution this volume for a discussion of locative inversion.)

(13) a. [*In the garden*]$_i$ *seems* __$_i$ *to be the best place* (*to smoke*).
b. [*In the garden*]$_i$ *seems* __$_i$ *to suit him fine*.

Allen (1995: 105–106) discusses experiencers in terms of word order facts and argues that dative experiencers are subjects in Old English: ". . . it was semantic roles which determined the relative order of the NPs here, with Experiencers tending to precede Themes." One way of capturing the word order facts is in a three-stage story: (i) the subject-of construction is a mapping between a subject (morpho-syntactic) grammatical function and a proto-agent thematic role;

(ii) experiencers are part of the agent prototype and therefore part of the subject prototype; (iii) subjects precede other arguments. Note that Allen says, "if we assume that the Experiencer was actually the subject, all the positional possibilities follow automatically."

We can think about Allen's position again in terms of the semantics of grammaticalization. It is commonly understood that semantic change leads grammatical change—and here we have a paradigm case where a semantics which is associated with Subjects gives rise to the grammatical function actually being a subject, even as early as in Old English, in violation of the form of the word which realizes the subject-of relation.

One way of thinking about non-nominative subjects is as an exponent of morphological lag in grammaticalization. Given the usage-based assumptions of construction grammars, we can understand the process as one where there is a semantic assignment of the experiencer argument to an agent prototype, which causes the syntactic argument to be reanalysed as a syntactic subject because agent prototype semantics is associated, by default, with subjects. This in turn gives rise to a further regularisation where the subjects are associated with nominative morphology.

The same explanation will also work for Icelandic quirky case marking, first discussed in Andrews (1976). In (14), *Henni* is a non-nominative (dative) subject. Van Valin (1991) demonstrates that this argument must be a syntactic argument because, as the subsequent example in (15) demonstrates, it raises over the Icelandic word for SEEM.

(14) *Henni* *hefur* *alltaf* *þótt* *Ólafur* *leiðinlegur*.
Her (D) has always thought Olaf (N) boring (Nsg)
'She has always considered Olaf boring.'

In this case, we can assume that semantics and syntax line up in the argument linking, and that the morphology does not represent the syntactic relations.

(15) *Henni* *virðist* *alltaf* *hafa* *þótt* *Ólafur* *leiðinlegur*.
Her (D) seem always have$_{INF}$ thought Olaf (N) boring (Nsg)
'She always seems to have found Olaf boring.' (Van Valin 1991).

This raises quite significant questions about what cues speakers exploit, because it might be thought that morphology would be significant and salient in acquisition. But what we have seen in the examples in this section is that syntax trumps morphology, and that a semantic reanalysis can drive a syntactic reanalysis, overriding morphological information. This is probably not a surprising outcome—morphological irregularity is rife and it must surely be part of the learner's experience that morphology is a crude guide to meaning and structure.

6. Conclusions

In this paper, I have argued that in order to understand processes of grammaticalization, it is necessary to understand associated processes of constructional change, because grammatical change occurs in a constructional context. I have exploited WG as my theoretical tool, for the reason that it offers a useful way of understanding constructions both in terms of their internal dimensions, and as fine-grained tools by which we can understand reanalyses of particular grammatical functions. There are, I think, two main conclusions from this paper: there is outstanding fine-grained work to be done on the constructional repository of even as thoroughly described a language as English; and it is necessary to have a debate about what the granularity of a construction might be. We need to discuss, argue for, a typology of constructions for English, so that we can have a realistic discussion about, among other things, how processes of change have proceeded.

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